LOGISTICAL ESTIMATION SUPPORT

Learning Objectives

- Terminal:
  - Given engineer equipment and a job request, with the aid of references, implement the engineer equipment to meet mission requirements in accordance with the listed references.

Learning Objectives

- Enabling:
  - Given a mission directive, table of organization and area reconnaissance reports, with the aid of notes and references, compute the subsistence requirement for the job in accordance with the listed references.

Learning Objectives

- Given a mission directive, table of organization and area reconnaissance reports, with the aid of notes and references, compute the petroleum, oil, lubricant (POL) requirement for the job in accordance with the listed references.

Learning Objectives

- Given a mission directive, table of organization and area reconnaissance reports, with the aid of notes and references, identify the procedures for obtaining the class IV requirement for the job in accordance with the listed references.

Learning Objectives

- Given engineer equipment and a job request, with the aid of notes and references, implement engineer equipment to meet mission requirements in accordance with the listed references.

BEFORE ANY LOGISTICAL ESTIMATIONS CAN BE DONE CERTAIN QUESTIONS MUST BE ANSWERED.

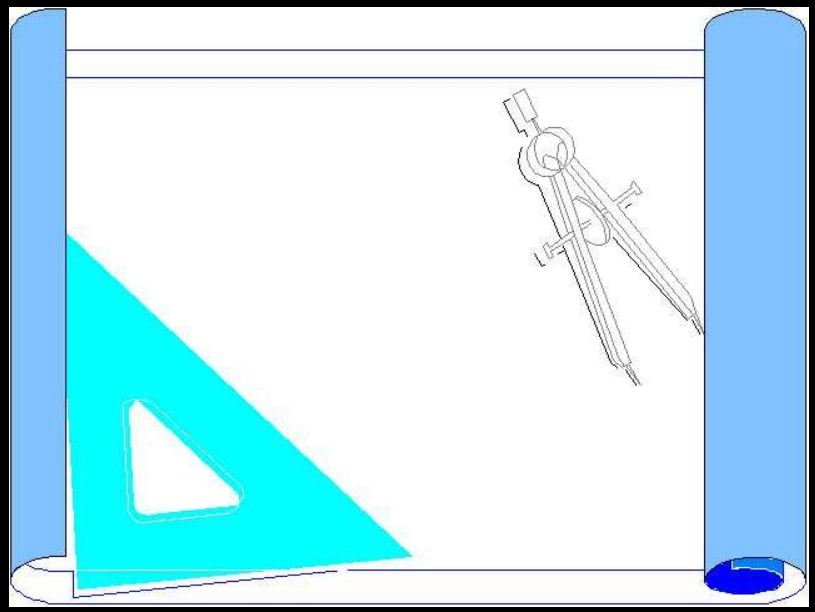
RESPONSIBILITIES FOR GAINING THIS INFORMATION AND PERFORMING THESE TASKS IS BROKEN DOWN BY RANK.

RESPONSIBIITIES

- ENGINEER OFFICER
- ENGINEER CHIEF
- ENGINEER NCO

ENGINEER OFFICER

- CONDUCT SITE RECONNAISSANCE
- ORDER SURVEY
- ORDER SOIL ANALYSIS
- ORDER ENVIRONMENTAL IMPACT STUDY



ENGINEER OFFICER

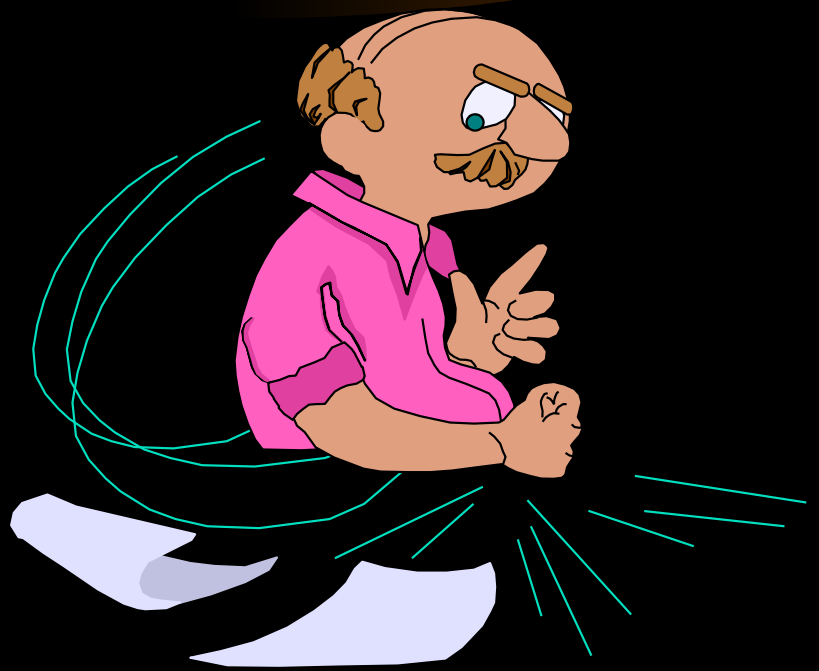
- ORDER GRADE STAKES TO BE PLACED AND ENVIRONMENTAL AREAS MARKED
- SUPPLY BLUE PRINT AND ENVIRONMENTAL STUDY TO CHIEF

ENGINEER OFFICER

- ORDER EACH CHIEF TO MAKE WRITTEN ESTIMATIONS FOR EACH AREA OF CONCERN
- COLLECT DATA FROM ALL CHIEFS AND FORMULATE TOTAL ESTIMATION

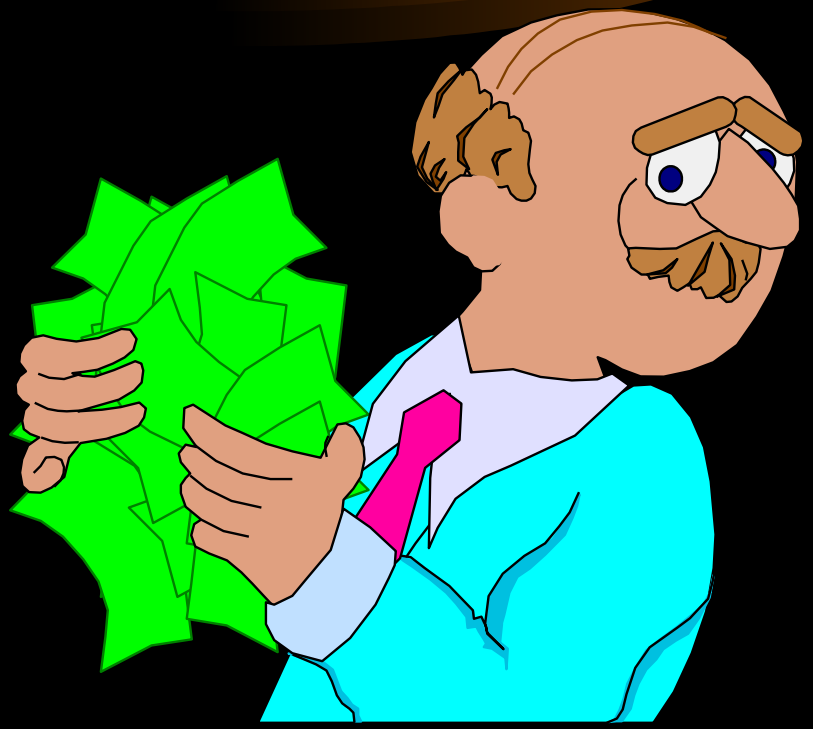
ENGINEER OFFICER

- IDENTIFY CONSTRUCTION REQUIREMENTS / LIMITATIONS / RESTRICTIONS
- USE CRITICAL PATH METHOD TO PLAN PROJECT
- ISSUE ORDERS TO CONDUCT MISSION



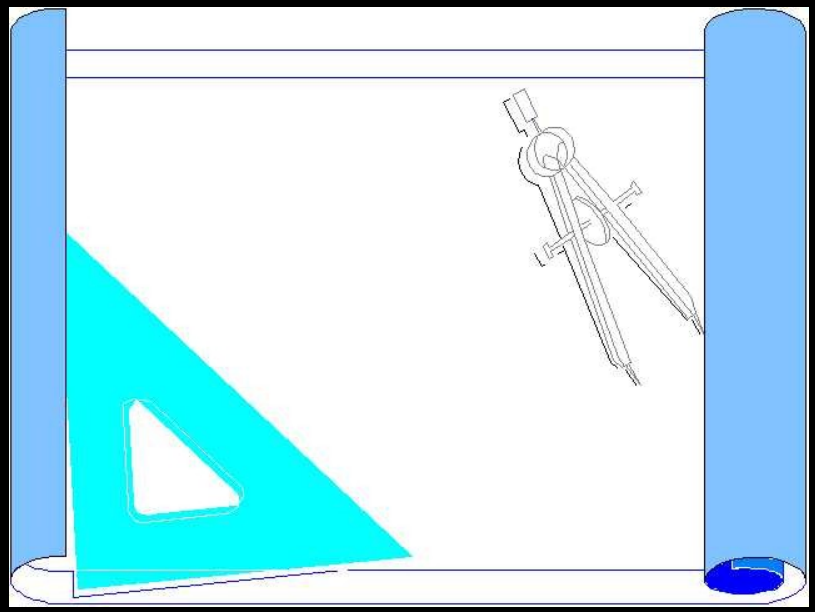
ENGINEER CHIEF

- CONDUCT SITE RECON.
- READ SURVEY (BLUE PRINT)
- GET SOIL ANALYSIS INFO
- VIEW ENVIRONMENTAL IMPACT STUDY



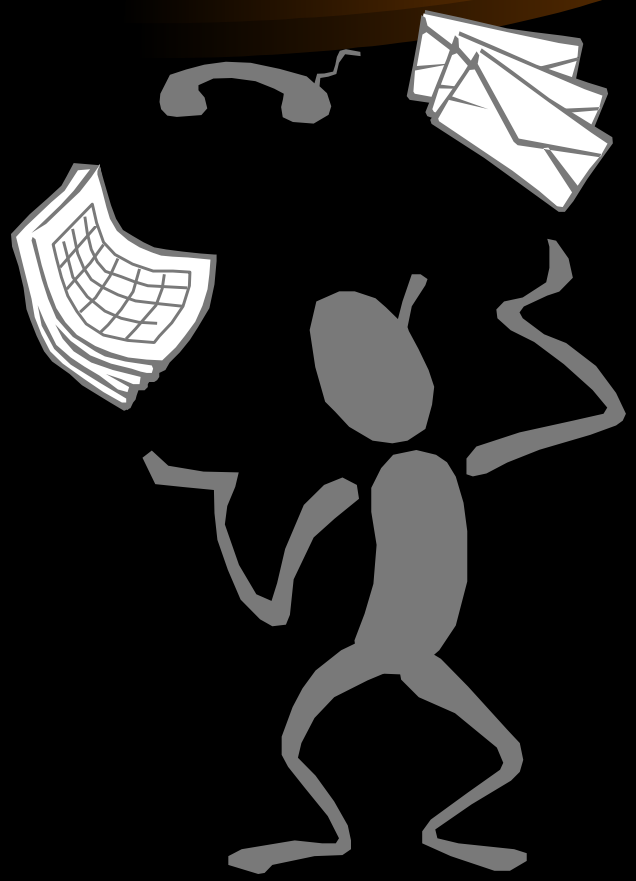
ENGINEER CHIEF

- MAKE ESTIMATIONS OFF OF MEASUREMENTS GIVEN IN BLUE PRINT



ENGINEER CHIEF

- RETURN WRITTEN ESTIMATIONS TO PROJECT OFFICER.
- PLAN ORDER OF WORK USING CRITICAL PATH METHOD

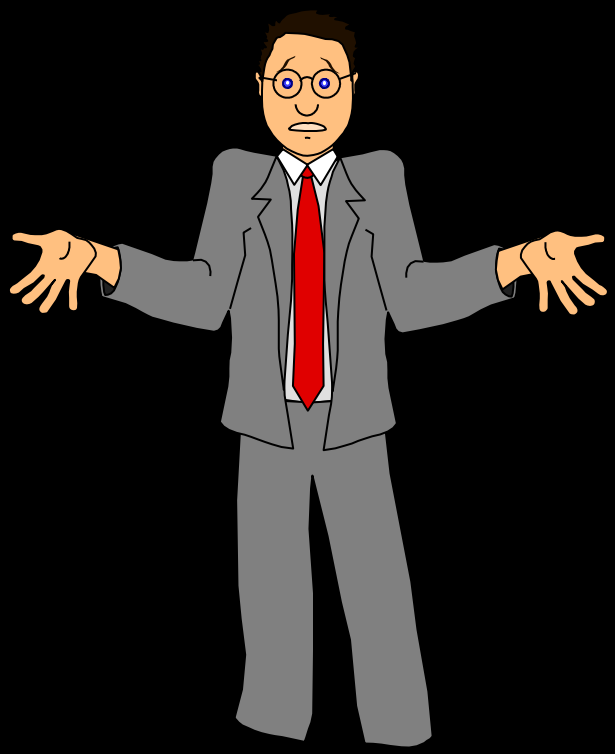


ENGINEER CHIEF

- ISSUE THE ORDER TO THE NCO’S TO EMPLOY EQUIPMENT

ENGINEER NCO

- REQUEST THE SUPPORT OF FUEL, OILS, WATER AND CHOW
- COORDINATE EQUIPMENT TO AND AT THE JOB SITE
- SUPERVISE CREWS AND TEAMS



ESTIMATING LOGISTICS

LOGISTICAL ESTIMATIONS

- TO MAKE THE WRITTEN ESTIMATIONS REQUIRED, THE FOLLOWING FORMULAS MUST BE USED

FUEL CONSUMPTION

- # OF EQUIP X GALS/HR X HRS/DAY X # OF DAYS = TOTAL GALS OF FUEL

USE TABLE #1 FOR GALS PER HOUR FOR EACH TYPE OF ENGINEER EQUIPMENT

ADD DIFFERENT TYPES TOGETHER TO GET TOTAL FUEL REQUIREMENT

EXAMPLE

TOTAL FUEL CONSUMPTION FOR 3 SCRAPERS (621B) WORKING 12 HR/DAY FOR 10 DAYS AND 2 TRAMS (644E) WORKING 12 HR/DAY FOR 4 DAYS, ALSO 2 GRADERS (130G) WORKING 12 HR/DAY FOR 13 DAYS

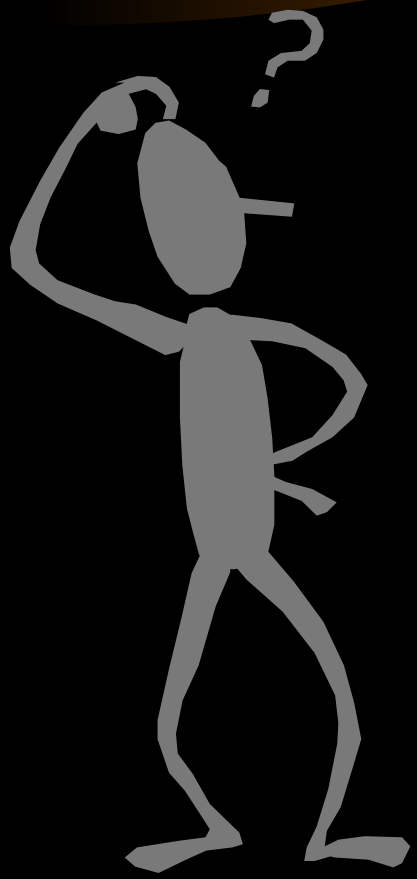
SOLUTION

- EQUIP X GALS/HR X HRS/DAY X #DAYS = TOTAL FUEL REQUIRED

  - 621B 3 X 10 X 12 X 10 = 3,600
  - 644E 2 X 6 X 12 X 4 = 576
  - 130G 2 X 4 X 12 X 13 = 1,248
  - TOTAL = 5,424 GALS

WHAT HAVE YOU LEARNED

- WORK THE WHAT “HAVE YOU LEARNED” PROBLEM IN YOUR STUDENT HANDOUT



SOLUTION

- EQUIP X GALS/HR X HRS/DAY X #DAYS = TOTAL FUEL REQUIRED

  - 3 X 8 X 10 X 8 = 1,920
  - 2 X 4 X 10 X 3 = 240
  - 1 X 10 X 10 X 2 = 200
  - TOTAL = 2,360 GALS

P. O. L.

ONCE TOTAL GALLONS OF FUEL HAVE BEEN COMPUTED ALL OTHER P.O.L. REQUIREMENTS CAN BE ESTIMATED

P.O.L. STEP 1

- 10 WT THROUGH 50 WT
  - .02 X TOTAL GALS FUEL = TOTAL OE

P.O.L STEP 2

- 80 WT THROUGH 90 WT
  - .005 X TOTAL GALS FUEL = TOTAL GO

P.O.L STEP 3

- GREASE OR GAA
  - STEP 1 DETERMINE ESTIMATED METER HOURS
  - # OF EQUIP X HR/DAY X #DAYS = EST METER HOURS

P.O.L STEP 3 CONT.

EST METER HOURS

8 X .25 = GAA LBS

The 8 is for 8 hours on the meter the .25 is for 1/4 lbs. of grease for every 8 meter hours.

P.O.L.

- NOTE:
  - TO MAKE THINGS SIMPLE TOTALS ARE PUT IN A CHART.
  - ROUND OFF GALLONS BEFORE PUTTING IN TABLE.

EXAMPLE

2 GRADERS (130G) WITH AN ESTIMATED TOTAL FUEL CONSUMPTION OF 1,248 GALS, AND AN ESTIMATED 13 TOTAL DAYS OPERATED.

SOLUTION

10 WT THROUGH 50 WT

.02 X 1,248 EST FUEL NEEDED = 24.96 OR 25 GALS OE

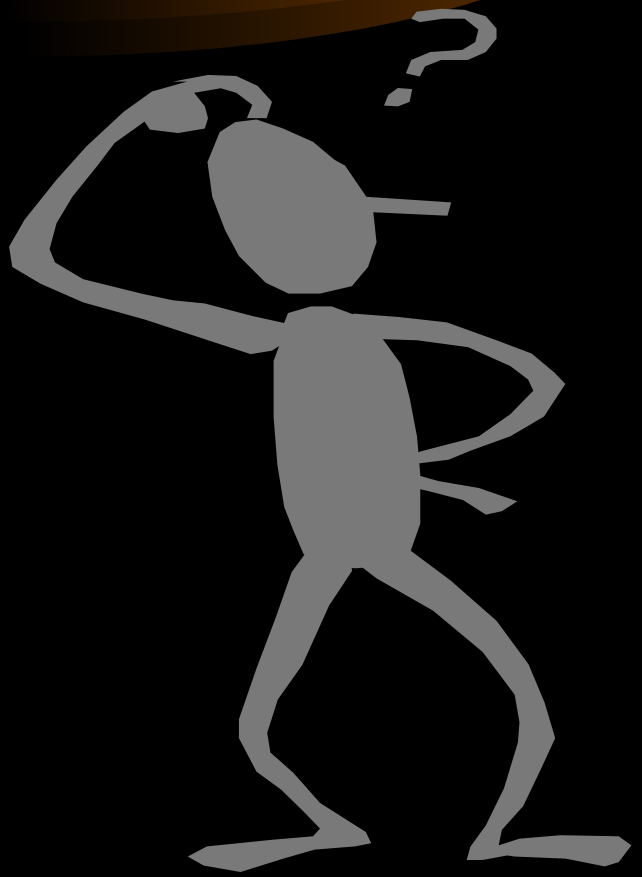
80 WT THROUGH 90 WT

.005 X 1,248 EST FUEL NEEDED = 6.24 OR 7 GALS GO

GREASE OR GAA

WHAT HAVE YOU LEARNED

- WORK THE WHAT “HAVE YOU LEARNED” PROBLEM IN YOUR STUDENT HANDOUT



SOLUTION

3 TRAMS (644E)

.02 X 3,500 EST FUEL NEEDED = 70 GALS OE

.005 X 3,500 EST FUEL NEEDED = 17.5 OR 18 GALS OE

3 644E X 7 HRS/DAY X 8 DAYS = 168 EST METER HRS

EST METER HRS

SOLUTION CONT.

2 SEE TRACTORS

.02 X 1,200 EST FUEL NEEDED = 24 GALS OF OE

.005 X 1,200 EST FUEL NEEDED = 6 GALS OF GO

2 SEE X 7 HR/DAY X 8 DAYS = 112 EST METER HRS

SOLUTION CONT.

	OE GAL	GO GAL	GAA LBS
TRAM	70	18	6
SEE	24	6	4
TOTALS	94	24	10

WATER CONSUMPTION

- POTABLE
- NON-POTABLE

WATER CONSUMPTION

- USE TABLE #2 TO COMPUTE WATER REQUIREMENTS FOR:
  - SOIL PREPARATION AND DUST CONTROL
  - EQUIPMENT (NON-POTABLE)
  - DRINKING (POTABLE)
  - SHOWERS (POTABLE)
  - LAUNDRY (POTABLE)

SOIL PREPARATION AND DUST CONTROL

NON-POTABLE

TOTAL SQ. YD. X 1 GAL/SQ. YD. X 1.10
WASTE =
GALS REQ

EQUIPMENT FORMULA

NON-POTABLE

QTY OF EQUIP X 1 GAL/DAY X EST DAYS X 1.10 WASTE =

GALS REQ

SHOWERS

POTABLE

\# OF PERSONNEL X TABLE 2 X # OF DAYS X 1.10

WASTE =

GALS REQ

LAUNDRY

POTABLE

OF PERSONNEL X TABLE 2 X # OF DAYS X 1.10

WASTE =

GALS REQ

DRINKING WATER FORMULA

POTABLE

PERSONNEL X TABLE 2 X DAYS X 1.10
WASTE =
GALS REQ

EXAMPLE

ESTIMATE THE WATER CONSUMPTION FOR 250 PERSONNEL WORKING FOR 28 DAYS IN A HOT CLIMATE. COMPUTE THE REQUIREMENT FOR 50 VEHICLES. YOU WILL BE WORKING ON A ROAD THAT IS 4,000’ LONG AND 28’ WIDE FROM DITCH TO DITCH.

SOLUTION
SOIL PREPARATION

NON POTABLE

4,000’ L X 28’ W

9 = 12,444.44 OR

12,445 SQ YD

12,445 SQ YD X 1 GAL X 1.10 = 13,689.5 OR

SOLUTION CONT. EQUIPMENT

NON POTABLE

50 VEHICLES X 1 GAL/DAY X 28 DAYS X 1.10 WASTE
=
1,540
GALS

SOLUTION CONT. LAUNDRY

POTABLE

250 MEN X 2.1 X 4 DAYS X 1.10 WASTE = 2310 GALS

SOLUTION CONT. SHOWERS

POTABLE

250 MEN X 1.0 X 4 DAYS X 1.10 WASTE = 1,100 GALS

SOLUTION CONT. DRINKING WATER

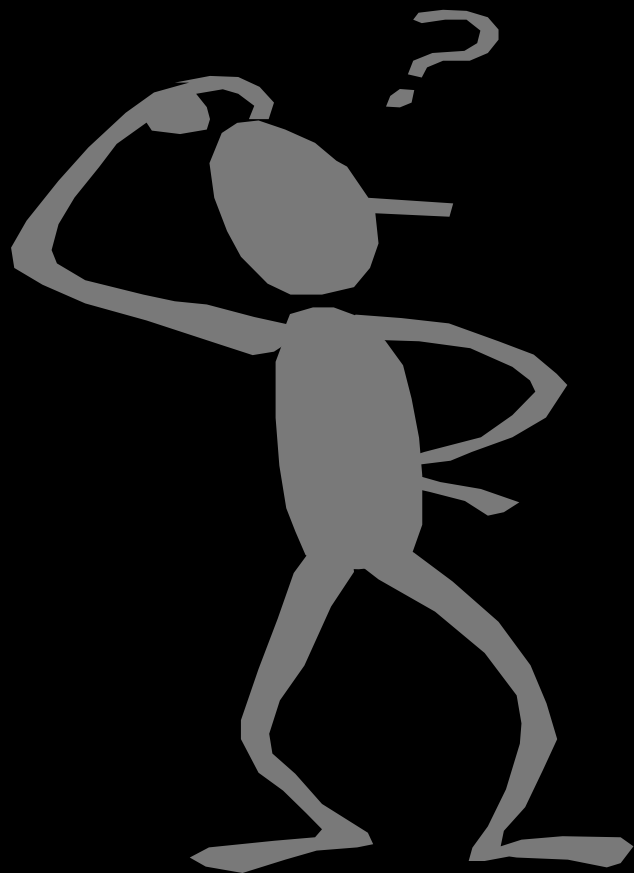
POTABLE

250 PERSONS X 3 GALS/DAY X 28 DAYS X 1.10 WASTE =

23,100 GALS

WHAT HAVE YOU LEARNED

- WORK THE WHAT "HAVE YOU LEARNED" PROBLEM IN YOUR STUDENT HANDOUT



SOLUTION

SOIL

6,099’ L X 24’ W

9 = 16,264 SQ YD

16,264 SQ YD X 1 GAL X 1.10 WASTE = 17,891 GALS

SOLUTION CONT.

EQUIPMENT

25 VEHICLES X 1 GAL/DAY X 60 DAYS X 1.10 =

1,650 GALS

SOLUTION CONT.

SHOWERS

75 MEN X 1.0 X 1.10 X 60 DAYS = 4,950 GALS

SOLUTION CONT.

LAUNDRY

75 MEN X 2.1 X 9 TIMES X 1.10 = 1560 GALS

SOLUTION CONT.

DRINKING

75 MEN X 3 GAL/MAN X 60 DAYS X 1.10 =

14,850 GALS

SOLUTION CONT.

	POTABLE	NON POTABLE
SOIL		17,891
EQUIPMENT		1,650
LAUNDRY	4,950	
SHOWERS	1,560	
DRINKING	14,850	
TOTALS	21,360	19,541

MRE FORMULA

#PERSONNEL X 3 MEALS/DAY X #OF DAYS =

TOTAL # OF MEALS

TOTAL # OF MEALS

12 = TOTAL # OF

EXAMPLE

THE UNITS SIZE IS 175 PERSONNEL, WORKING 60 DAYS, DETERMINE THE QUANTITY OF MEAL READY-TO-EAT, BY THE CASES.

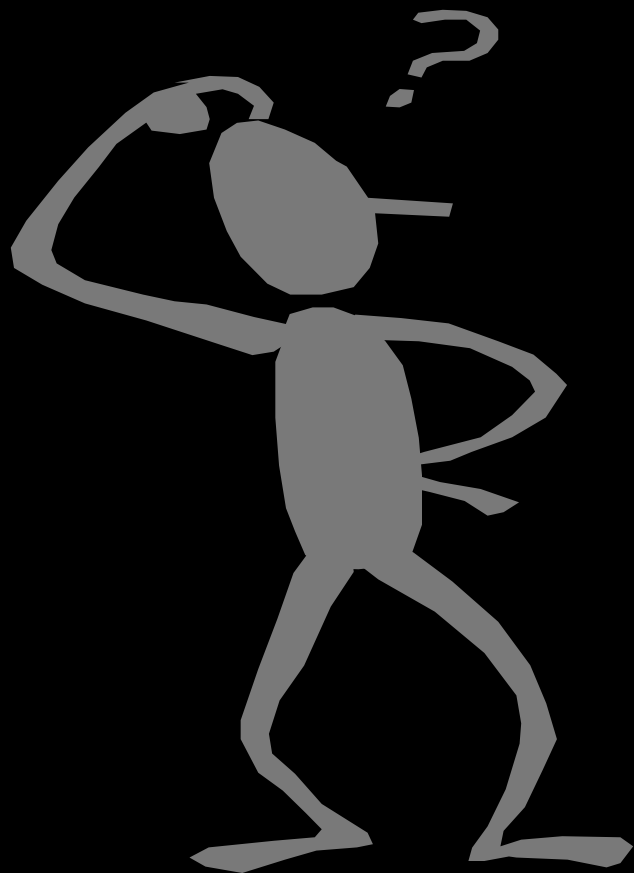
SOLUTION

- 175 PERSONNEL X 3 MEALS/DAY X 60 DAYS = 31,500 TOTAL MEALS

- 31,500 TOTAL MEALS / 12/CASE = 2,625 CASES

WHAT HAVE YOU LEARNED

- WORK THE “WHAT HAVE YOU LEARNED” PROBLEM IN YOUR STUDENT HANDOUT



SOLUTION

- 30 PERSONNEL X 3 MEALS/DAY X 20 DAYS = 1800 TOTAL MEALS

- 1,800 TOTAL MEALS / 12/CASE = 150 CASES

QUESTIONS